

REMARKS

The present Amendment amends claims 1, 3-6 and 8-16. Therefore, the present application has pending claims 1, 3-6 and 8-16.

Claim Objections

Claims 1, 6, 11 and 15 stand objected to due to informalities noted by the Examiner. Where appropriate, Applicants amended claims 1, 6, 11 and 15 to correct the informalities. Therefore, this objection is overcome and should be withdrawn.

However, regarding claim 1, Applicants traverse this objection for the following reasons. On page 3 (paragraph 7) of the Office Action, the Examiner alleges that there is insufficient antecedent basis for "a token revoke request" as recited in claim 1, line 6. However, Applicants submit that "a token revoke request means" is first recited in line 6, and "a token revoke request" is first recited in lines 6-7. Therefore, "a token revoke request means" provides sufficient antecedent basis for any further recitations of a token revoke request means, and "a token revoke request" provides sufficient antecedent basis for any further recitations of a token revoke request. Accordingly, the objection to claim 1 should be withdrawn.

35 U.S.C. §101 Rejections

Claims 15 and 16 stand rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter. Applicants have amended claims 15 and 16 in accordance with the Examiner's recommendations. Accordingly, Applicants submit that claims 15 and 16, as more clearly recited, are directed to statutory subject matter and are in compliance with the provisions of 35 U.S.C. §101.

Allowable Subject Matter

The Examiner indicated that claims 4, 5, 9, 10, 13 and 14 would be allowable if rewritten to overcome the claim objections set forth in the Office Action, and to include all the limitations of the base claim and any intervening claims.

Applicants submit that the claim objections set forth in the Office Action are overcome. Furthermore, minor editorial amendments were made to claims 4, 5, 9, 10, 13 and 14 to make these claims consistent with the claims that were objected to. Accordingly, the subject matter of claims 4, 5, 9, 10, 13 and 14 remains allowable.

35 U.S.C. §103 Rejections

Claims 6, 8, 15 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,634,122 to Loucks et al. ("Loucks") in view of U.S. Patent No. 5,175,851 to Johnson et al. ("Johnson"). This rejection is traversed for the following reasons. Applicants submit that the features of the present invention, as now more clearly recited in claims 6, 8, 15, and 16, are not taught or suggested by Loucks or Johnson, whether taken individually or in combination with each other in the manner suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention. Specifically, amendments were made to the claims to more clearly recite that the present invention is directed to a file send and receive method and a program as recited, for example, in independent claims 6, 15 and 16.

The present invention, as recited in claim 6, and as similarly recited in claims 15 and 16, provides a file send and receive method used in a distributed file system. The distributed file system includes a storage device for holding files, multiple clients for carrying out file operations on the storage device, a server using tokens to control rights to file reading and writing operations by the clients, and a network connecting the clients, the storage device and the server. The method includes making a request to the server for a token for rights to perform the file operations, wherein a first client makes the request to the server, and sending, by the server, the token revoke request to a second client that holds write operation rights to the file, so as to request a return of the token for the write operation rights. According to the present invention, the token revoke request includes information identifying the first client that requested the token for the file, and information indicating a level of the token requested by the first client, the level being either read or write. The method also includes sending, by the second client that received the token revoke request, the file for the token held in the memory section, to the first client that requested the token for the file. The prior art does not teach or suggest all of these features.

As shown in Fig. 3 of the present invention, the token request message is comprised of a file ID field 41, a revoke token class field 42, a range specifier field 43, request token level field 44, and a token request node ID field 45. The file ID field 41 shows information on the file for the token request. The revoke token class field 42 shows the class of token (for example, data, attribute, size, file name, etc.). The range specifier field 43 shows the file range. In a distributed file system where a token can specify the file range, the client only needs to process the range specified in the range specifier field 43. The request token level field 44 shows the level

(read/write) of the token. The token request node ID field 45 shows information on the request source client requesting the token.

As such, the revoke request message contains information on the node (client 11) requesting the token, and the level (read or write) of the requested token (level requested by the client 11). In the present invention, when the server issues a revoke-request to a node holding a token, information on the node requesting the token is also added to that revoke-request. Therefore, the file for that token does not have to be written back into the storage device and is delivered while still in a dirty state. Taking these steps allows reducing as much as possible the number of times the storage device is subjected to I/O processing (accessed) and processing is performed in parallel.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Loucks or Johnson, whether taken individually or in combination with each other.

Loucks teaches a system and method for multi-level token management for distributed file systems. However, there is no teaching or suggestion in Loucks of the file send and receive method and program as recited in claims 6, 15 and 16 of the present invention.

Loucks discloses a system and method for controlling access to shared resources in a distributed computer system. Access to shared resources is controlled by a local authorization token manager. Only computer processes holding authorization tokens for the requested operation may perform that operation. Each requested operation checks for the proper token. If the token is not held by the

process, it is requested. The local token manager resolves token conflicts before granting tokens. A token manager of a distributed file system export protocol also is able to request authorization tokens from the local token manager. The export protocol token manager controls authorization tokens for that particular distributed file system protocol. Multiple different export protocols may request tokens from the local token manager. The shared resources may therefore be shared by multiple different export protocols without conflict. Local processes and processes requesting shared resource operations through an export protocol that does not itself manage tokens are granted tokens through the operation token request mechanism. This mechanism enables local processes to use shared resources without the performance penalty of having to request through a local distributed client process.

One feature of the present invention, as recited in claim 6, and as similarly recited in claims 15 and 16, includes where the token revoke request includes information identifying the first client that requested the token for the file, and information indicating a level of the token requested by the first client, the level being either read or write. Loucks does not disclose this feature.

On page 6 (last line) to page 7, line 3 of the Office Action, the Examiner concedes that Loucks does not disclose the information contained in the token revoke request in the claims as previously presented. Applicants further submit that Loucks is silent regarding the contents of the token revoke request. Accordingly, it follows that Loucks does not teach or suggest the contents of the token revoke request as recited in the claims, as currently amended. Namely, Loucks fails to teach or suggest where the token revoke request includes information identifying the

first client that requested the token for the file, and information indicating a level of the token requested by the first client, the level being either read or write.

Therefore, Loucks fails to teach or suggest “wherein said token revoke request includes information identifying the first client that requested the token for said file, and information indicating a level of the token requested by said first client, said level being either read or write” as recited in claim 6, and as similarly recited in claims 15 and 16.

The above noted deficiencies of Loucks are not supplied by any of the other references of record, namely Johnson, whether taken individually or in combination with each other. Therefore, combining the teachings of Loucks and Johnson in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Johnson teaches a system and method for controlling client machine access to a portion of a file with a variable length. However, there is no teaching or suggestion in Johnson of the file send and receive method and program as recited in claims 6, 15 and 16 of the present invention.

Johnson discloses a system and method in which client access to data at a server is synchronized to keep the data consistent by ensuring that each portion of the data accessible for modification at a node is not accessible for reading or modification by any other node, while allowing portions of the data accessible only for reading to be accessible by any number of nodes. If a conflicting request arises from a different client the server must revoke data that has been previously distributed to a client. For a revoke_bytes request, all outstanding get_bytes are marked so that the bytes that are being requested to be revoked will be discarded

when they do arrive at the client. To insure that read and write system calls on a file are performed in a serializable fashion throughout a distributed environment, each machine at which a read is being performed must acquire a read token and each machine at which a write is being performed must acquire a read/write token from the server for the file. When any machine has a read/write token, no machine is allowed to have a read token, although any number of machines may have a read token at the same time. The server coordinates the distribution of these tokens by revoking all read tokens whenever a write token is requested and revoking the write token whenever any read token is requested.

One feature of the present invention, as recited in claim 6, and as similarly recited in claims 15 and 16, includes where the token revoke request includes information identifying the first client that requested the token for the file, and information indicating a level of the token requested by the first client, the level being either read or write. Johnson does not disclose this feature.

On page 7 (paragraph 29) of the Office Action, the Examiner relies upon Johnson for teaching where the contents of the token revoke request contains information, as recited in the previously presented claims. To support this assertion, the Examiner cites column 11, lines 35-48 to column 13, lines 28-45. However, the cited text in column 11, lines 45-48 is merely directed to acquiring a read or write token, and the cited text at column 13, lines 28-45 is merely directed to the operation of a revoke token process that occurs in response to a revoke token request and where the token is examined to determine if it is currently locked. Contrary to the Examiner's assertions, Johnson is silent regarding the contents of the token revoke request. Accordingly, it follows that Johnson does not teach or suggest the contents

of the token revoke request as recited in the claims, as currently amended. Namely, Johnson fails to teach or suggest where the token revoke request includes information identifying the first client that requested the token for the file, and information indicating a level of the token requested by the first client, the level being either read or write.

Therefore, Johnson fails to teach or suggest "wherein said token revoke request includes information identifying the first client that requested the token for said file, and information indicating a level of the token requested by said first client, said level being either read or write" as recited in claim 6, and as similarly recited in claims 15 and 16.

Both Loucks and Johnson suffer from the same deficiencies, relative to the features of the present invention, as recited in the claims. Therefore, combining the teachings of Loucks and Johnson in the manner suggested by the Examiner does not render obvious the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 6, 8, 15 and 16 as being unpatentable over Loucks in view of Johnson are respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 6, 8, 15 and 16.

Claims 1, 3, 11 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Loucks in view of Johnson, and further in view of U.S. Patent

Application Publication No. 2003/0110117 to Saidenberg et al. ("Saidenberg"). This rejection is traversed for the following reasons. Applicants submit that the features of the present invention, as now more clearly recited in claims 1, 3, 11 and 12, are not taught or suggested by Loucks, Johnson or Saidenberg, whether taken individually or in combination with each other in the manner suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention. Specifically, amendments were made to the claims to more clearly recite that the present invention is directed to a distributed file system and a client device as recited, for example, in independent claims 1 and 11.

The present invention, as recited in claim 1, and as similarly recited in claim 11, provides a distributed file system. The system includes a storage device for holding files, and multiple clients for carrying out file operations on the storage device. The system also includes a server using tokens to control rights to file reading and writing operations by the clients, and a network connecting the clients, the storage device and the server. According to the present invention, the server contains a token revoke request means for sending a token revoke request for demanding a return of a token granting rights to write on the file, to a first client that holds the token. Also according to the present invention, the token revoke request means sends the token revoke request, which includes information identifying a second client that requested the file, and information indicating a level of the token requested by the second client, the level being either read or write. Furthermore, according to the present invention, the first client includes a memory section for

holding file data loaded from the storage device and a data output means for sending the file held in the memory section and relating to the token, to the server for the second client that requested the token when the token revoke request is received. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either of Loucks, Johnson or Saidenberg, whether taken individually or in combination with each other.

As previously discussed, Loucks teaches a system and method for multi-level token management for distributed file systems. However, there is no teaching or suggestion in Loucks of the distributed file system or the client device as recited in claims 1 and 11 of the present invention.

One feature of the present invention, as recited in claim 1, and as similarly recited in claim 11, includes where the token revoke request means sends the token revoke request, which includes information identifying a second client that requested the file, and information indicating a level of the token requested by the second client, the level being either read or write. Loucks does not disclose this feature.

On page 13 (paragraph 45) of the Office Action, the Examiner concedes that Loucks does not disclose the information contained in the token revoke request in the claims as previously presented. Applicants further submit that Loucks is silent regarding the contents of the token revoke request. Accordingly, it follows that Loucks does not teach or suggest the contents of the token revoke request as recited in the claims, as currently amended. Namely, Loucks fails to teach or suggest where the token revoke request includes information identifying the first

client that requested the token for the file, and information indicating a level of the token requested by the first client, the level being either read or write.

Therefore, Loucks fails to teach or suggest “wherein said token revoke request means sends said token revoke request, which includes information identifying a second client that requested said file, and information indicating a level of said token requested by said second client, said level being either read or write” as recited in claim 1, and as similarly recited in claim 11.

The above noted deficiencies of Loucks are not supplied by any of the other references of record, namely Johnson, whether taken individually or in combination with each other. Therefore, combining the teachings of Loucks and Johnson in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Johnson teaches a system and method for controlling client machine access to a portion of a file with a variable length. However, there is no teaching or suggestion in Johnson of the distributed file system or the client device as recited in claims 1 and 11 of the present invention.

One feature of the present invention, as recited in claim 1, and as similarly recited in claim 11, includes where the token revoke request means sends the token revoke request, which includes information identifying a second client that requested the file, and information indicating a level of the token requested by the second client, the level being either read or write. Johnson does not disclose this feature.

On page 13 (paragraph 46) of the Office Action, the Examiner relies upon Johnson for teaching where the contents of the token revoke request contains information, as recited in the previously presented claims. To support this assertion,

the Examiner cites column 11, lines 35-48 to column 13, lines 28-45. However, the cited text in column 11, lines 45-48 is merely directed to acquiring a read or write token, and the cited text at column 13, lines 28-45 is merely directed to the operation of a revoke token process that occurs in response to a revoke token request and where the token is examined to determine if it is currently locked. Contrary to the Examiner's assertions, Johnson is silent regarding the contents of the token revoke request. Accordingly, it follows that Johnson does not teach or suggest the contents of the token revoke request as recited in the claims, as currently amended. Namely, Johnson fails to teach or suggest where the token revoke request includes information identifying the first client that requested the token for the file, and information indicating a level of the token requested by the first client, the level being either read or write.

Therefore, Johnson fails to teach or suggest "wherein said token revoke request means sends said token revoke request, which includes information identifying a second client that requested said file, and information indicating a level of said token requested by said second client, said level being either read or write" as recited in claim 1, and as similarly recited in claim 11.

The above noted deficiencies of Loucks in view of Johnson are not supplied by any of the other references of record, namely Saidenberg, whether taken individually or in combination with each other. Therefore, combining the teachings of Loucks, Johnson and Saidenberg in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Saidenberg teaches a system and method for providing integrated applications availability in a networked computer system. However, there is no teaching or suggestion in Saidenberg of the distributed file system or the client device as recited in claims 1 and 11 of the present invention.

Saidenberg discloses systems and methods for providing integrated applications availability in a networked computer system. The system includes a network including at least one client computer and at least one host server computer. A host server computer engaged in a session with a client computer causes display of a window on a display device of a client computer, the window including a number of display areas, each of the display areas displaying initial content provided through a different application. For example, upon selection of a portion of one or the displays, a second window is displayed that includes additional content. Session information is stored in a database separately from the client computer and the host server computer engaged in the session. Session information obtained from the database is used in causing at least one of the display of the second window and display of a window comprising further content.

One feature of the present invention, as recited in claim 1, and as similarly recited in claim 11, includes where the token revoke request means sends the token revoke request, which includes information identifying a second client that requested the file, and information indicating a level of the token requested by the second client, the level being either read or write. Saidenberg does not disclose this feature, and the Examiner does not rely upon Saidenberg for disclosing the contents of the token revoke request means.

Therefore, Saidenberg fails to teach or suggest “wherein said token revoke request means sends said token revoke request, which includes information identifying a second client that requested said file, and information indicating a level of said token requested by said second client, said level being either read or write” as recited in claim 1, and as similarly recited in claim 11.

Each of Loucks, Johnson and Saidenberg suffer from the same deficiencies, relative to the features of the present invention, as recited in the claims. Therefore, combining the teachings of Loucks, Johnson and Saidenberg in the manner suggested by the Examiner does not render obvious the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 1, 3, 11 and 12 as being unpatentable over Loucks in view of Johnson, and further in view of Saidenberg are respectfully requested.

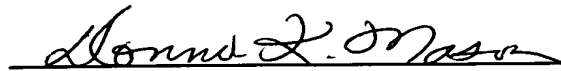
The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 1, 3, 11 and 12.

In view of the foregoing amendments and remarks, Applicants submit that claims 1, 3-6 and 8-16 are in condition for allowance. Accordingly, early allowance of claims 1, 3-6 and 8-16 is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger & Malur, P.C., Deposit Account No. 50-1417 (referencing Attorney Docket No. 1213.43347X00).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.

A handwritten signature in cursive script, appearing to read "Donna K. Mason", is written over a horizontal line.

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